

In the Claims:

Please amend the claims as follows:

1. (currently amended) A method for fault detection in a power transformer/autotransformer and/or interconnected power lines that are within a zone protected by a differential protection, ~~the method being particularly suitable for detecting turn-to-turn faults in power transformer/autotransformer windings and including measuring all individual instantaneous phase currents of the protected object and calculating individual phase currents as fundamental frequency phasors,~~ the method comprising:

calculating ~~the~~ contributions of ~~the~~ negative sequence currents of individual sides of a individual protected object sides ~~negative sequence currents to the~~ a total negative sequence differential current by compensating for ~~the~~ a phase shift of the power transformer within ~~the~~ a protected zone;

comparing ~~the~~ relative positions of ~~the~~ compensated negative sequence currents of individual sides of the protected object ~~negative sequence currents in the~~ a complex plane, in order to determine whether ~~the~~ a source of the negative sequence currents, ~~i.e. the fault position,~~ is within the protected zone or outside of the protected zone, delimited with current transformer locations; and

disconnecting the protected object if it is determined that the source of the negative sequence currents is within the protected zone.

2. (currently amended) A device for detecting a fault in a power transformer,

autotransformer or interconnected power lines, that are within a zone protected by a differential protection, and particularly suitable for detecting turn-to-turn faults in power

transformer/autotransformer windings, the device comprising:

a measuring module configured to measure ~~means for measuring~~ all individual instantaneous phase currents of ~~the~~ a protected object;

a calculating module configured to calculate ~~means for calculating~~ individual phase currents as fundamental frequency phasors;

a calculating module configured to calculate ~~means for calculating~~ the contributions of negative sequence currents of the individual sides of the protected object ~~sides negative sequence currents to the~~ a total negative sequence differential current by compensating for ~~the~~ a phase shift of an eventual power transformer within the protected zone;

a comparing module configured to compare ~~means for comparing~~ the relative positions of ~~the compensated individual sides~~ negative sequence currents of the individual sides of the protected object in ~~the~~ a complex plane, in order to determine whether ~~the~~ a source of the negative sequence currents, ~~i.e. the fault position~~, is within the protected zone or outside of the protected zone, delimited with current transformer locations; and

a disconnecting module configured to disconnect ~~means for disconnecting~~ the protected object if it is determined that the source of the negative sequence currents is within the protected zone.

3. (previously amended) The device according to claim 2, further comprising:

a fault discriminator arranged to determine when a fault occurs.

4. (previously amended) The device according to claim 2, further comprising:  
a fault discriminator arranged to determine if the fault is internal or external.

5. (currently amended) A computer program product, comprising:  
a computer readable medium;  
computer program instructions recorded on the computer readable medium, executable  
by a processor for performing the step of:

calculating ~~the~~ contributions of ~~the~~ negative sequence currents of individual sides of a  
~~individual protected object sides negative sequence currents to the~~ a total negative sequence  
differential current by compensating for ~~the~~ a phase shift of the power transformer within ~~the~~ a  
protected zone;

comparing ~~the~~ relative positions of ~~the~~ compensated negative sequence currents of  
individual sides of the protected object ~~negative sequence currents in the~~ a complex plane, in  
order to determine whether ~~the~~ a source of the negative sequence currents, ~~i.e. the fault position,~~  
is within the protected zone or outside of the protected zone, delimited with current transformer  
locations; and

disconnecting the protected object if it is determined that the source of the negative  
sequence currents is within the protected zone.

6. (cancelled)

7. (currently amended) The computer program product, according to claim 4, 5, wherein  
the computer program instructions are further for carrying out the step of at least partially

providing the computer program instructions through a network.

8. (previously submitted) The computer program product according to claim 7, wherein the network is the internet.

9. (new) The method according to claim 1, wherein the method detects turn-to-turn faults in power transformer/autotransformer windings and includes measuring all individual instantaneous phase currents of the protected object and calculating individual phase currents as fundamental frequency phasors.

10. (new) The method according to claim 1, wherein the source of the negative sequence currents is the fault position.

11. (new) The device according to claim 2, wherein the source of the negative sequence currents is the fault position.